[18] George and Walsh, *Trans. Faraday Soc.* **42**, 94 (1946); Tobolsky, *Discussions Faraday Soc.* **2**, 384 (1947); Kendall, *Ind. Eng. Chem.* **43**, 452 (1951).
[17] White, Ebers, Shriver, and Breck, *Ind. Eng. Chem.* **37**, 770 (1945).
[18] Sweitzer and Lyon, *Ind. Eng. Chem.* **44**, 125 (1952); Lyon, Burgess, and Sweitzer, paper presented at the meeting of the Division of Rubber Chemistry of the American Chemical Society, Boston, May 27–29, 1953.
[19] Ziegler, Späth, Schaaf, Schumann, and Winkelmann, *Ann.* **551**, 80 (1942); Bloomfield, *J. Chem. Soc.*, **1944**, p. 114.
[20] Robertson and Waters, *J. Chem. Soc.* (London) **1947**, p. 492.
[21] Fields, *J. Am. Chem. Soc.* **76**, 2709 (1954).
[22] Fisher, *Ind. Eng. Chem.*, **31**, 1381 (1939).
[23] Farmer, *Trans. Faraday Soc.* **38**, 340 (1942); Rehner and Flory, *Ind. Eng. Chem.* **38**, 500 (1946).
[24] Arnold and Collins, *J. Am. Chem. Soc.* **61**, 1407 (1939); Farmer, *Trans. Faraday Soc.* **38**, 340 (1942); Rehner and Flory, *Ind. Eng. Chem.* **38**, 500 (1946).
[25] Rehner and Flory, *Ind. Eng. Chem.* **38**, 500 (1946).
[26] Stearns and Johnson, *Ind. Eng. Chem.* **43**, 146 (1951).
[27] Farmer, *Trans. Faraday Soc.* **38**, 340 (1942); Selker and Kemp, *Ind. Eng. Chem.* **36**, 16 (1944); Armstrong, Little, and Doak, *Ind. Eng. Chem.* **36**, 628 (1944).

INDEX

RUBBER CHEMISTRY AND TECHNOLOGY VOLUME XXVIII, 1955

AUTHOR INDEX

Page

ALEKSANDROVICH, KH. M. See STAROBINETS, G. L.

AMBERLANG, J. C., AND SMITH, G. E. P., JR. Behavior of reclaiming agents in sulfur and nonsulfur GR-S vulcanizates 322

AMERONGEN, G. J. VAN. Effect of fillers on the permeability of rubber to gases 821

ANDERSEN, D. E., AND KOVACIC, PETER. Aging stability of Neoprene latex. Relation between cross-linking and hydrolysis of allylic chlorine 628

BAADER, TH. The Mooney viscometer 588

BAKER, H. C. Vulcanizing variability of natural rubber in pure-gum and carbon black compounds 570

BARBIER, JEAN. Study of permeability to gases. Mixtures of natural rubber and other elastomers 814

BARTENEV, G. M. Laws of unidimensional compression and stretching of rubber ... 19

———. Representation of the mechanical properties of high-polymers by the model method 66

———, RATNER, S. B., NOVIKOVA, N. M., AND KONENKOV, K. S. Testing of rubber for its low-temperature stability by measurement of the loss of elasticity 711

BARTON, BERNARD C. See DOAK, KENNETH W.

———, SMALLWOOD, HUGH M., AND GANZHORN, GEO. H. Chemistry in carbon black dispersion 202

BASS, S. I. See KUZMINSKII, A. S.

BEATTY, J. R. See JUVE, A. E.

———, AND JUVE, A. E. Simple objective method for estimating low concentrations of ozone in air 608

BENNETT, R. B., AND SMITH, G. E. P., JR. Relation of oxygen to the activity of GR-S reclaiming agents 308

BEST, L. L., AND MORRELL, S. H. Effect of sulfuric acid coagulation on properties of natural rubber 1185

BEVILACQUA, E. M. Water-soluble acids of the latex of Hevea brasiliensis 657

BINDER, JOHN L. Microstructures of polybutadienes and butadiene-styrene copolymers 121

BILLUART, (MRS.) M. See PINAZZI, C. P.

BLANCHARD, A. F. Breakage of rubber-filler linkages and energy dissipation in stressed rubber 540

BLOKH, G. A., AND SAZONOVA, L. P. Reaction of a thiuram with sulfur 804

BOISSONAS, CH. G. See EHRBAR, J. P.

BOONSTRA, B. B. S. T. See DANNENBERG, E. M.

BRADEN, M., FLETCHER, W. P., AND MCSWEENEY, G. P. Vulcanization of rubber by organic peroxides 190

BROWN, HAROLD P., AND GIBBS, CARLIN F. Carboxylic elastomers 937

BUECHE, A. M. Curing of silicone rubber with benzoyl peroxide 865

BUIST, J. M. Aging and weathering of rubber 230

BULGIN, D., AND WRATTEN, R. Measurements of steady flow characteristics of rubber at high rates of shear 534

Page

CHAPPUIS, M. M., POLLEY, M. H., AND SCHULZ, R. A. Reinforced rubber stocks under the electron microscope 253

CHARLESBY, ARTHUR. Cross-linking of rubber by pile radiation 1

CHERTKOVA, V. F. See KUZMINSKII, A. S.

COLLIER, H. M. See MADGE, E. W.

CONTYL-LACAU, (MME.) L. Degradation of high polymers. Scission reactions in the oxidation of GR-S in solution.

I. Experimental part 746

II. Theoretical part and a kinetic study ... 758

CRAMPSEY, EDWARD, GORDON, MANFRED, AND SHARPE, JOHN W. Electron-microscopic study of the locul of a latex reaction 623

———, AND TAYLOR, JAMES S. Kinetics and mechanism of hydrochlorination of synthetic and natural polyisoprene latex . 288

DANIELS, R. D. See GEHMAN, S. D.

DANNENBERG, E. M., AND BOONSTRA, B. B. S. T. Performance of carbon blacks. Influence of surface roughness and porosity 878

DECKER, GEORGE E. See ROTH, FRANK L.

DOAK, KENNETH W., GANZHORN, GEO. H., AND BARTON, BERNARD C. Promotors for the reaction of rubber with carbon black 895, 1164

DOGADKIN, B. A. See LUKOMSKAYA, A. I.; REZNIKOVSKII, M. M.

———, AND LUKOMSKAYA, A. Structure and dielectric properties of rubber mixtures containing carbon black 891

DRAKE, G. W. Some osmotic measurements of the molecular weight of a high-molecular fraction of rubber hydrocarbon 504

EBERT, G., AND WEIDNER, V. Abrasion and slippage 1082

EDWARDS, D. C., AND STOREY, E. G. Ozone resistance of Butyl vulcanizates 1096

EHRBAR, J. P., AND BOISSONNAS, CH. G. Thermal effect in the elongation and relaxation of rubber 675

ERMOLENKO, N. F. See ERMOLENKO, I. N.

ERMOLENKO, I. N., MAZEL, M. I., AND ERMOLENKO, N. G. Importance of the polar component of mixed fluids in the swelling of vulcanizates 833

FARMER, E. H., FORD, J. F., AND LYONS, J. A. Interaction of sulfur and sulfur compounds with olefinic substances. VII. Low-temperature sulfuration of trialkylethylenes with hydrogen sulfide-sulfur dioxide and with a sulfur-zinc dithiocarbamate system 470

FETTES, E. M., JORCZAK, J. S., AND PANEK, J. R. Mechanism of vulcanization of polysulfide rubbers 139

FIELD, J. E., WOODFORD, AND GEHMAN, S. D. Infrared study of oxidation of elastomers. 770

FLETCHER, W. P. See BRADEN, M.

FORD, J. F. See FARMER, E. H.

FROMANDI, GUIDO. See ROELIG, HERMANN.

Page

GAGINA, K. See SANDOMIRSKIĬ, D. M.
GALIL-OGLY, F. A. See NOVIKOV. A.
GANZHORN, GEO. H. See BARTON, BERNARD C.; DOAK, KENNETH W.
GARTEN, V. A. Free-radical activity of reinforcing rubber fillers 596
GEHMAN, S. D. See FIELD, J. E.
———, AND HOBBS, L. M. Changes in elastomers due to radiation from cobalt^{60}. 12
———, WILKINSON, C. S., JR., AND DANIELS, R. D. Smearing of vulcanized rubber... 508
GENT, A. N. Crystallization in natural rubber.
II. Influence of impurities 457
III. Filled compounds 460
———. Crystallization and the relaxation of stress in stretched natural-rubber vulcanizates 36
GIBBS, CARLIN F. See BROWN, HAROLD P.
GILS, G. E., VAN AND RESING, W. L. Accelerated coagulation of latex 1193
GLAZEBROOK, R. W., AND SAVILLE, R. W. Reactions of amines and sulfur with olefins. III. The reaction of diethylamine and sulfur with 1,5-diolefins 109
GLAZER, J. Vulcanization of crepe rubber by sulfur monochloride. II. The dilatometric method 850
———, AND SCHULMAN, J. H. Vulcanization of crepe rubber by sulfur monochloride. I. The gelation method 278
GORDON, MANFRED. See CRAMPSEY, EDWARD.
———, AND TAYLOR, JAMES S. Evidence for a hydrochlorination retarder within natural-rubber latex particles 918
———, AND ———. Introduction to the mechanism of the hydrochlorination of rubber 207
GUL, V. E., AND KLITENIK, G. S. Effect of molecular interaction on the light scattering of rubber solutions 494
GUMBRELL, S. M., MULLINS, L., AND RIVLIN, R. S. Departures of the elastic behavior of rubbers in simple extension from the kinetic theory 24

HÄNDLER, F. See KAINRADL, P.
HENDERSON, D. A., AND MCLEOD, L. A. Low-temperature properties of plasticized butadiene-styrene copolymers 557
HENRI-ROBERT, P. Test of the applicability of dielectric loss measurements to the study of the aging of pure-gum rubber mixtures 420
HOBBS, L. M. See GEHMAN, S. D.
HONNOLD, V. R., MCCAFFREY, F., AND MROWCA, B. A. Studies of rubberlike polymers by nuclear magnetism 480
HOWLAND, L. H., AND NISONOFF, ALFRED. Mechanism of formation of cream in GR-S latex 641
HRIVIKOVA, J. See TKÁČ, A.
HUTTON, ALLEN Q., AND NOLLE, A. W. Experimental study of low-frequency effects on the dynamic modulus of a Buna-N rubber 131

IMOTO, MINORU, AND KIRIYAMA, SHIGERU. Studies of the mechanism of the mastication of rubber. VIII. The reaction of natural rubber with 3,5-dibromobenzoyl peroxide 808

JORCZAK, J. S. See FETTES, E. M.
JUVE, A. E. See BEATTY, J. R.
———, AND BEATTY, J. R. Shrinkage of mold-cured elastomer compositions 1141

KAINRADL, P., AND HÄNDLER, F. Heat build-up and destruction of vulcanizates under dynamic stress 153
ASOTOCHKIN, V. I., AND LUKIN, B. V. x-Ray investigation of the amorphous state of rubber 728

Page

KELLÖ, V. See TKÁČ, A.
———, AND TKÁČ, A. Reaction kinetics in the aging of natural rubber by infrared spectrography. III. Effect of light and antioxidants 968
KIRIYAMA, SHIGERU. See IMOTO, MINORU.
KLITENIK, G. S. See GUL, V. E.
KONEKOV, K. S. See BARTENEV, G. M.
KOVACIC, PETER. Bisalkylation theory of Neoprene vulcanization 1021
———. See ANDERSEN, D. E.
KÜNZLE, OTHMAR. See KUHN, WERNER.
KUHN, WERNER, AND KÜNZLE, OTHMAR. Experimental determination of the dynamic viscosity and elasticity and also of the relaxation time spectrum of rubber... 694
KUZMINSKIĬ, A. S. See REITLINGER, S. A.
———, AND BASS. I. Joint influence of free and combined sulfur and *N*-phenyl-2-naphthylamine on the oxidation of vulcanized rubber 793
———, AND CHERTKOVA, V. F. Role of oxygen in the vulcanization of natural rubber 785
———, AND LEZHNEV, N. N. Inhibited oxidation of elastomers 412
———, MAIZELS, M. G., AND LEZHNEV, N. N. Mechanical activation of the initation of oxidation of elastomers 429

LEZHNEV, N. N. See KUZMINSKIĬ, A. S.
LUKIN, B. V. See KASOTOCHKIN, V. I.
LUKOMSKAYA, A. I., AND DOGADKIN, B. A. Structure and properties of loaded rubber mixtures. XII. Dielectric properties of natural rubber-carbon black mixtures... 84
LYONS, J. A. See FARMER, E. H.

MAASSEN, G. C. See YOUMANS, R. A.
MCCAFFREY, F. See HONNOLD, V. R.
MCLEOD, L. A. See HENDERSON, D. A.
MCSWEENEY, G. P. See BRADEN, M.
MADGE, E. W., COLLIER, N. M., AND NEWNHAM, J. L. M. Zinc oxide testing of latex 1211
MAIZELS, M. G. See KUZMINSKIĬ, A. S.
MANDELKERN, LEO. See ROBERTS, DONALD E.
MARSHALL, D. G., WALKER, D. L., AND SMITH, J. G. Softening of vulcanized black-loaded rubber during extension.... 1123
MARTIN, B. J. A., AND PARKINSON, D. Milling procedure: its effect on physical properties 261
MAZEL, M. I. See ERMOLENKO, I. N.
MERRETT, F. M. Interaction of polymerizing syatems with rubber and its homologs. II. Interaction of rubber in the polymerization of methyl methacrylate and of styrene 72
MOONEY, M., AND WOLSTENHOLME, W. E. The rheological unit in raw elastomers... 488
MOORE, C. G., AND SAVILLE, R. W. Reactions of amines and sulfur with olefins. I. The reaction of diethylamine and sulfur with cyclohexene 92
II. The reaction of diethylamine and sulfur with cyclohexene 102
MORRELL, S. H. See BEST, L. L.
MORRISSEY, R. T. Butyl type polymers containing bromine 952
MORTON, MAURICE. Molecular weights of emulsion polydienes 732
MROWCA, B. A. See HONNOLD, V. R.
MULLINS, L. See GUMBRELL, S. M.

NEWNHAM, J. L. M. See MADGE, E. W.
NISONOFF, ALFRED. See HOWLAND, L. H.
NOLLE, A. W. See HUTTON, ALLEN Q.
NOVIKOV, A., AND GALIL-OGLY, F. A. Effect of structurizing agents on the plasticization and vulcanization of butadiene-styrene rubber 57
NOVIKOVA, N. M. See BARTENEV, G. M.
NYBURG, S. C. x-Ray determination of crystallinity in deformed natural rubber. 999

Page

Oberto, Stefano. New instruments for measuring hardness 1054
Ossefort, Z. T., and Touhey, W. J. Ozone crazing of biaxially stressed GR-S vulcanizates 1119

Pande, J. B. See Ramakrishnan, C. S.
Panek, J. R. See Fetters, E. M.
Pariente, Claude. Study of some heat-sensitizing agents of Hevea latex 1166
Parkinson, D. See Martin, B. J. A.
Paton, F. J. Significance of the yellow fraction in spontaneous coagulation 1204
Pinazzi, C. P., and Billuart (Mme.) M. Protection of natural rubber. I. The effects of nickel dibutyldithiocarbamate alone and in combination with protective agents 438
Polley, M. H. See Chappuis, M. M.
Priss, L. S. See Reznikovskii, M. M.

Raghunath, D. See Ramakrishnan, C. S.
Ramakrishnan, C. S., Raghunath, D., and Pande, J. G. Chlorination of natural rubber solutions by means of phenyl iododichloride 598
Ratner, S. B. See Bartenev, G. M.
Reitlinger, S. A., and Kuzminskii, A. S. Solubility of *N*-phenyl-2-naphthylamine in elastomers 186
Rehing, W. L. See Gils, G. E. van.
Reznikovskii, M. M., Priss, L. S., and Dogadkin, B. A. Study of the laws of deformation of loaded elastomers 684
Rivlin, R. S. See Gumbrell, S. M.
Roberts, Donald E., and Mandelkern, Leo. Nature of stark rubber 1007
———. Thermodynamics of crystallization in high polymers. Natural rubber 718
Roelig, Hermann, and Fromandi, Guido. Determination of the resistance of soft-rubber parts to periodic stressing, and its relationship to energy absorption and deformation 1044
Roth, Frank L., Decker, George E., and Stiehler, Robert D. Temperature control during mixing of rubber compounds 1157

Salomon, G., and Schee, Chr. van der. Infrared analysis of isomerized, vulcanized, and oxidized natural rubber 213
———. Infrared analysis of some chlorinated natural rubbers 224
Sandomirskii, D. M., and Gagina, K. Formation of rubber films from solutions and aqueous dispersions 527
Saville, R. W. See Glazebrook, R. W.; Moore, C. G.
Sazonova, L. P. See Blokh, G. A.
Schallamach, A. Abrasion of rubber 906
Schee, Chr. van der. See Salomon, G.
Schonlau, W. J. K. Migration of antioxidants during oven aging 379
Schreuer, E. Softness, impact time, and internal damping of technical rubber mixtures 145
Schulman, J. H. See Glazer, J.
Schulz, R. A. See Chappuis, M. M.

Page

Scott, J. R. Rubber hardness testing 1071
Smallwood, Hugh M. See Barton, Bernard C.
Smith, G. E. P. Jr. See Amberlang, J. C.; Bennett, R. C.
Smith, J. G. See Marshall, D. G.
Stalinsky, Eugène. Energy consumed in the plasticization of rubber on a roll mill . 606
———. The plasticization of rubber on roll mills. A correction 573
Starobinets, G. L., and Aleksandrovich, Kh. M. Thermodynamics of the swelling of natural rubber and sodium-butadiene rubber in binary mixtures 838
Stiehler, Robert D. See Roth, Frank L.
Storey, E. B. See Edwards, D. C.

Talalay, Joseph A. Load-carrying capacity of latex foam rubber 358
Taylor, James S. See Crampsey, Edward; Gordon, Manfred.
Tempel, M. van den. Solubility of zinc oxide in preserved Hevea latex 927
———. See Vries, A. J. de.
Thorshud, A. Influence of salt coagulants on the properties and on the aging of products made by the dipping process 1175
Tkáč, A. See Kelló, V.
———, and Kelló, V. Study by infrared spectrography of the aging of natural rubber. II. Effect of light (Experimental results) ..... III, 383, 968
———, and Hrivikova, J. Reaction kinetics in the aging of natural rubber by infrared spectrography. IV. Effect of the wave length of the radiation and the temperature on aging by light 986
Touhey, W. J. See Ossefort, Z. T.
Tunnicliffe, M. E. Nonrubber components of ammonia-preserved latex. An analytical study 673

Vries, A. J. de, and Tempel, M. van den. Structure and rheological properties of Hevea latex gels 922

Walker, D. L. Pressure coefficient of resistance of conductive rubber 519
———. See Marshall, D. G.
Watson, W. F. Combination of rubber and carbon black on cold milling 1032
Weidner, V. See Ebert, G.
Wilkinson, C. S. Jr. See Gehman, S. D.
Wolstenholme, W. E. See Mooney, M.
Wood, Lawrence A. Crystallization in butadiene-styrene copolymers 51
———. Mooney viscosity changes in freshly prepared raw natural rubber 917
Woodford, R. See Field, J. E.
Wratten, R. See Bulgin, D.
Wynne-Evans, C. Determination of free sulfur in hard rubber 1221

Youmans, R. A., and Maassen, G. C. Correlation of room temperature shelf aging with accelerated aging 1133

Zuev, Y. S. Protection of rubbers against ozone cracking 788

SUBJECT INDEX

Abrasion
of rubber 906
and slippage 1082
Accelerated aging 1133
Accelerated coagulation of latex 1193
Acids, water-soluble, of latex 657
Activation, mechanical, of initiation oxidation 429
Aging
by light 989
of natural rubber
reaction kinetics in 968, 989
study by infrared spectrography of 383
of products made by dipping process 1175
of pure-gum rubber mixtures 420
shelf, with accelerated aging 1133
stability of Neoprene latex 628
and weathering of rubber 230
Allylic chlorine, hydrolysis of 628
Amines, reactions of, with olefins 92, 102, 109
Amorphous state of rubber 728
Analysis, infrared 213, 224
Antioxidants, effect of light and 968

Behavior of reclaiming agents in sulfur and nonsulfur GR-S vulcanizates 322

	Page
Benzoyl peroxide, curing silicone rubber with	865
Biaxially stressed GR-S vulcanizates	1119
Binary mixtures, swelling in	828
Bisalkylation theory of Neoprene vulcanization	1021
Breakage of rubber-filler linkages and energy dissipation in stressed rubber	540
Bromine in Butyl type polymers	952
Buna-N rubber	131
Butadiene-styrene copolymers	121, 557
rubber	57
Butyl type polymers containing bromine	952
vulcanizates	1096
Carbon black compounds	570
dielectric properties	891
dispersion	202
mixtures	84
performance of mixtures of	878
promoters for reaction of rubber with	895
and rubber	1032
Carboxylic elastomers	937
Changes in elastomers due to radiation from cobalt^{60}	12
Chemistry in carbon black dispersion	202
Chlorinated natural rubbers	224
Chlorination of natural rubber solutions	598
Coagulants, salt	1175
Coagulation, accelerated, of latex	1193
spontaneous	1204
sulfuric acid	1185
Cobalt^{60}	12
Combination of rubber and carbon black on cold milling	1032
Conductive rubber, resistance of	519
Copolymers, microstructures of	121
Correlation of room-temperature shelf aging with accelerated aging	1133
Cracking, ozone	788
Crazing, ozone, of GR-S vulcanizates	1119
Cream in GR-S latex	641
Crepe rubber, vulcanization by sulfur monochloride	278
Crystallinity, x-ray determination of	999
Crystallization in butadiene-styrene copolymers	51
in natural rubber. II	457
III	460
and relaxation of stress in stretched natural-rubber vulcanizates	36
thermodynamics of, in high polymers	718
Cross-linking of allylic chlorine	628
of rubber by pile radiation	1
Curing of silicone rubber with benzoyl peroxide	865
Cyclohexane, reaction of diethylamine and sulfur with	92
Damping, internal	145
Deformation and energy absorption	1044
Deformed natural rubber, crystallinity in	999
Degradation of high polymers. Scission reactions in oxidation of GR-S. I	746
II	758
Departures of the elastic behavior of rubbers in simple extension from the kinetic theory	24
Destruction of vulcanizates under dynamic stress	153
Determination of free sulfur in hard rubber	1221
of resistance of soft-rubber parts to periodic stressing, and its relationship to energy absorption and deformation	1044
3,5-Dibromobenzoyl peroxide, reaction with natural rubber	808
Dielectric loss measurements	420
properties of natural rubber-carbon black mixtures	84
properties of rubber mixtures containing carbon black	891
Diethylamine, reaction of, with 1,5-diolefins	109
and sulfur	92
with trialkylethylene	102
Dilatometric method of vulcanization of crepe rubber	850
Dipping process	1175
Dispersions aqueous, rubber films from	527
carbon black	202
Dynamic modulus of a Buna-N rubber	131
stress and heat build-up of vulcanizates	153
viscosity of rubber	694
Effect of fillers on permeability of rubber to gases	821
of molecular interaction on the light scattering of rubber solutions	494
of structurizing agents on the plasticization and vulcanization of butadiene-styrene rubber	57
of sulfuric acid coagulation on properties of natural rubber	1185
Elastic behavior, departures from	24
Elasticity measurement of loss of	711
of rubber	694
Electron microscope	253
Electron-microscopic study of the locus of a latex reaction	623
Elongation and relaxation of rubber	675
Emulsion polydienes, molecular weights of	732
Energy absorption and deformation	1044
consumed in the plasticization of rubber on a roll mill	606
dissipation of rubber-filler linkages	540
Evidence for a hydrochlorination retarder within natural-rubber latex particles	918
Experimental determination of the dynamic viscosity and elasticity and also of the relaxation time spectrum of rubber	964
study of low-frequency effects on the dynamic modulus of a Buna-N rubber	131
Extension simple, departures of elastic behavior in	24
softening during	1123
Fillers effect of, on permeability to gases	821
reinforcing rubber	596
rubber-, linkages	540
Films from solutions	527
Flow characteristics of rubber	534
Formation of rubber films from solutions and aqueous dispersions	527
Fraction, high-molecular, of rubber hydrocarbon	504
Free -radical activity of reinforcing rubber fillers	596
sulfur in hard rubber	1221
Gases, effect of fillers on permeability to gases	821
Gelation method	278
GR-S latex, formation of cream in	641
reclaiming agents	308
vulcanizates	322
ozone crazing of	1119
Hard rubber, free sulfur in	1221
Hardness new instruments for measuring	1054
testing of rubber	1071
Heat build-up and destruction of vulcanizates under dynamic stress	153
sensitizing agents	1166
Homologs of rubber	72
Hydrocarbon, high-molecular fraction	504
Hydrochlorination of latex	288
retarder in latex particles	918
of rubber	297

Page

Hydrogen sulfide-sulfur dioxide, sulfuration of trialkylethylenes with ... 470
Hydrolysis of allylic chlorine ... 628

Impact time of technical rubber mixtures ... 145
Importance of the polar component of mixed fluids in the swelling of vulcanizates ... 833
Impurities, influence of, in crystallization of rubber ... 457
Influence of salt coagulants on the properties and on the aging of products made by the dipping process ... 1175
Infrared
  analysis
    of some chlorinated natural rubbers ... 224
    of isomerized, vulcanized, and oxidized natural rubber ... 213
  spectrography ... 968, 989
  of aging natural rubber, study by ... 383
  study of oxidation of elastomers ... 770
Inhibited oxidation of elastomers ... 412
Instruments, new, for measuring hardness ... 1054
Interaction
  of polymerizing systems with rubber and its homologs. II. Interaction of rubber in the polymerization of methyl acrylate and of styrene ... 72
  of sulfur and sulfur compounds with olefinic substances. VII. Low-temperature sulfuration of trialkylethylenes with hydrogen sulfide-sulfur dioxide and with a sulfur-zinc dithiocarbamate system ... 470
Introduction to the mechanism of the hydrochlorination of rubber ... 297
Isomerized natural rubber, infrared analysis of 213

Joint influence of free and combined sulfur and *N*-phenyl-2-naphthylamine on the oxidation of vulcanized rubber ... 793

Kinetic study
  study of oxidation of GR-S in solution ... 746
  theory, departures of elastic behavior from . 24
Kinetics
  and mechanism of hydrochlorination of synthetic and natural polyisoprene latex . 288
  reaction in aging by infrared spectrography 383, 968

Latex
  accelerated coagulation of ... 1193
  ammonia-preserved ... 673
  GR-S, formation of cream in ... 641
  Hevea
    heat sensitizing agents of ... 1166
    water-soluble acids of ... 657
    zinc oxide in ... 927
  Neoprene, aging stability of ... 628
  non-rubber components of ... 673
  particles, hydrochlorination retarder in ... 918
  polyisoprene ... 218
  reaction locus of ... 623
  zinc oxide testing of ... 1211
  gels, rheological properties of ... 922
  of deformation of loaded elastomers ... 684
  of unidimensional compression and stretching of rubber ... 19
Light
  aging by ... 989
  effect
    of antioxidants and ... 968
    of, on study by infrared spectrography ... 383
  scattering of rubber solutions ... 494
Load-carrying capacity of latex foam rubber . . 358
Loaded
  elastomers, laws of deformation of ... 684
  rubber mixtures ... 84
Low-frequency effects of Buna-N rubber, study of ... 131
Low-temperature
  properties of plasticized butadiene-styrene copolymers ... 557
  stability of rubber ... 711
  testing elastomers at ... 335

Page

Magnetism, nuclear, studies by ... 480
Mastication of rubber, mechanism of ... 808
Measurements of steady flow characteristics of rubber at high rates of shear ... 534
Mechanical
  activation of the initiation of oxidation of elastomers ... 429
  properties of high polymers, representation by the model method ... 66
Mechanism
  of formation of cream in GR-S latex ... 641
  of hydrochlorination
    of latex ... 288
    of rubber ... 297
  of vulcanization of polysulfide rubbers ... 139
Methyl methacrylate, polymerization of ... 72
Microscope, electron ... 253
Microscopic, electron- study of locus of latex reaction ... 623
Microstructures of polybutadienes and butadiene-styrene copolymers ... 121
Migration of antioxidants during oven aging . 379
Milling
  cold ... 1032
  procedure: its effect on physical properties . 261
Mixing, temperature control during ... 1157
Mixtures of natural rubber and other elastomers ... 814
Model method, representation of mechanical properties by ... 66
Modulus, dynamic, of a Buna-N rubber ... 141
Mold-cured elastomer compositions ... 1141
Molecular weight
  of emulsion polydienes ... 732
  osmotic measurements ... 504
Mooney
  viscometer ... 588
  viscosity changes in freshly prepared raw natural rubber ... 917

Nature of stark rubber ... 1007
Neoprene
  latex, aging stability of ... 628
  vulcanization ... 1021
New instruments for measuring hardness ... 1054
N-phenyl-2-naphthylamine
  in elastomers ... 186
  influence of oxidation ... 793
Nickel dibutyldithiocarbamate, effects of ... 438
Nonrubber components of ammonia-preserved latex. An analytical study ... 673
Nonsulfur GR-S vulcanizates ... 322
Nuclear magnetism, studies by ... 480

Olefinic substances, interaction of sulfur with . 470
Olefins, reactions of amines with ... 92
Osmotic measurements of molecular weight . . 504
Oxidation
  of elastomers ... 429
    infrared study of ... 770
    inhibited ... 412
  of GR-S in solution ... 746
  of vulcanized rubber ... 793
Oxidized natural rubber, infrared analysis of . . 213
Oxygen
  relation of, to GR-S reclaiming agents ... 308
  role of, in vulcanization of natural rubber . . 785
Ozone
  in air, low concentrations of ... 608
  crazing of biaxially stressed GR-S vulcanizates ... 1119
  resistance of Butyl vulcanizates ... 1096

Performance of carbon blacks. Influence of surface roughness and porosity ... 878
Permeability to gases ... 814, 821
Peroxides, organic, vulcanization by ... 190
Phenyl iodochloride ... 598
Physical properties, effect of milling procedure on ... 261
Pile radiation, cross-linking of rubber in ... 1
Plasticization
  of rubber on roll mills ... 606, 673
  and vulcanization of butadiene-styrene rubber ... 57

	Page
Plasticized butadiene-styrene copolymers	557
Polar component of mixed fluids	833
Polybutadienes, microstructures of	121
Polydienes, molecular weights of emulsion	732
Polyisoprene latex	288
Polymerizing systems, interaction of, with rubber	72
Polysulfide rubbers, mechanism of vulcanization of	139
Porosity of carbon blacks	878
Pressure coefficient of resistance of conductive rubber	519
Promoters for the reaction of rubber with carbon black	895
Protection	
of natural rubber. I. The effects of nickel dibutyldithiocarbamate alone and in combination with protective agents	438
of rubbers against ozone cracking	788
Protective agents with nickel dibutyldithiocarbamate	438
Pure-gum	
compounds, vulcanizing variability of rubber in	570
rubber mixtures, aging of	420
Radiation	
cobalt^{60}, changes due to	12
effect of wave length of	989
pile	1
Raw elastomers, rheological unit in	488
Reaction	
kinetics in the aging of natural rubber by infrared spectrography	
II.	383
III. Effect of light and antioxidants	968
IV. Effect of the wave length of the radiation and the temperature on aging by light	989
of a thiuram with sulfur	804
Reactions of amines and sulfur with olefins.	
I. The reaction of diethylamine and sulfur with cyclohexene	92
II. The reaction of diethylamine and sulfur with trialkylethylenes	102
III. The reaction of diethylamine and sulfur with 1,5-diolefins	109
Reclaiming agents	
in GR-S	308
in vulcanizates	322
Reinforced rubber stocks under the electron microscope	253
Reinforcing rubber fillers	596
Rheological unit in raw elastomers	488
Relation of oxygen to the activity of GR-S reclaiming agents	398
Relaxation	
of rubber, thermal effect in	675
time spectrum of rubber	694
of stress in stretched vulcanizates	36
Representation of the mechanical properties of high-polymers by the model method	66
Role of oxygen in the vulcanization of natural rubber	785
Rubber hardness testing	1071
Shrinkage of mold-cured elastomer compositions	1141
Significance of the yellow fraction in spontaneous coagulation	1204
Simple objective method for estimating low concentrations of ozone in air	608
Slippage and abrasion	1082
Smearing of vulcanized rubber	508
Softening of vulcanized black-loaded rubber during extension	1123
Softness, impact time, and internal damping of technical rubber mixtures	145
Solubility	
of *N*-phenyl-2-naphthylamine in elastomers	186
of zinc oxide in preserved Hevea latex	927
Some osmotic measurements of the molecular weight of a high-molecular fraction of rubber hydrocarbon	504
Stark rubber	1007
Stressing, periodic	1044
Structure	
and dielectric properties of rubber mixtures containing carbon black	891
and properties of loaded rubber mixtures. XII. Dielectric properties of natural rubber-carbon black mixtures	84
and rheological properties of Hevea latex gels	922
Studies of the mechanism of the mastication of rubber. VIII. The reaction of natural rubber with 3,5-dibromobenzoyl peroxide	808
Studies of rubberlike polymers by nuclear magnetism	480
Study	
by infrared spectrography of the aging of natural rubber. II. Effect of light (Experimental results)	383
of the laws of deformation of loaded elastomers	684
of permeability to gases. Mixtures of natural rubber and other elastomers	814
of some heat-sensitizing agents of Hevea latex	1166
Sulfur, free	1221
Sulfuric acid coagulation	1185
Temperature control during mixing of rubber compounds	1157
Test of the applicability of dielectric loss measurements to the study of the aging of pure-gum rubber mixtures	420
Testing of rubber for its low-temperature stability by measurement of the loss of elasticity	711
Thermal effect in the elongation and relaxation of rubber	675
Thermodynamics	
of crystallization in high polymers. Natural rubber	718
of swelling of natural rubber and sodium-butadiene rubber in binary mixtures	838
Vulcanization	
of rubber by organic peroxides	190
of crepe rubber by sulfur monochloride	
I. The gelation method	278
II. The dilatometric method	850
Vulcanizing variability of natural rubber in pure-gum and carbon black compounds	570
Water-soluble acids of the latex of Hevea brasiliensis	657
x-Ray	
determination of crystallinity in deformed natural rubber	999
investigation of the amorphous state of rubber	728
Zinc oxide testing of latex	1211